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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,712	01/24/2002	Tsunenori Yamauchi	020076	4240
23850	7590	03/26/2004	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			LATTIN, CHRISTOPHER W	
		ART UNIT		PAPER NUMBER
		2812		

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/053,712	YAMAUCHI, TSUNENORI	
	Examiner Christopher W Lattin	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 27 January 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1)  Notice of References Cited (PTO-892)  
 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4)  Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_  
 5)  Notice of Informal Patent Application (PTO-152)  
 6)  Other: \_\_\_\_\_

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (U.S. Patent 5,001,533) in view of Saitoh et al. (U.S. Patent 6,537,369).

Yamaguchi teaches a semiconductor device comprising a first semiconductor layer 22 formed on a semiconductor substrate 21; an outgoing base electrode 26 formed on the first semiconductor layer 210; a base layer 32, 33 formed on the first semiconductor layer 22, directly connected to the outgoing base electrode at a side surface of the outgoing base electrode, with the dopant concentration higher at the dopant concentration of the base layer at the part 33 connected to the outgoing base electrode 26 is higher than a dopant concentration of the base layer immediately below the second semiconductor layer (32); and a second semiconductor layer 36a formed on the base layer, but fails to teach that the layers are formed of silicon germanium containing carbon. Saito et al. teach a semiconductor device layer of SiGe containing carbon, wherein the layer contains carbon by 0.01% to 60. It would have been obvious to one skilled in the art at the time of the invention to use SiGe containing carbon at the percentages of carbon as taught by Saito et al. in order to increase the speed of the

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devices taught by Yamaguchi. See especially column 1 and Figure 5 of Saitoh et al.

See Figures 3A-3H.

With reference to claims 16-20, Yamaguchi teaches that layer 33 is a doped region. See column 4 line 64. The reference fails to teach how that dopant is introduced. The reference does, however, teach that other doped layers are formed by implanting ions into the layer. It would have been obvious to one skilled in the art at the time of the invention to implant dopants into region 33 to modify the conductivity of that region using an already employed technique (see e.g. layer 22).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Lattin whose telephone number is (571) 272-1673. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached at (571) 272-1679. The fax number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

  
John F. Niebling  
Supervisory Patent Examiner  
Technology Center 2800

CWL   
March 11, 2004